Establishing Meaningful Laboratory Performance Indicators Using Quality Systems Thinking

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Introduction and Background

The University of Alberta Hospital is a 650 bed tertiary care academic center and is one of 13 hospitals and 2 primary care centers serving a population of about 1.1 million people in the Capital Health region (City of Edmonton, Alberta and surrounding area).

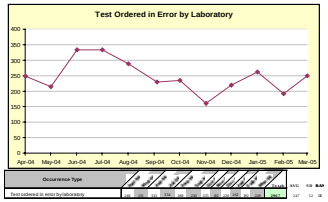
The University of Alberta Hospital Laboratory employs 325 staff, performs approximately 3 million tests/year and acts as a reference laboratory for the province.

Since the year 2000, the Laboratory has been implementing the NCCLS/CLSI Quality System Model.

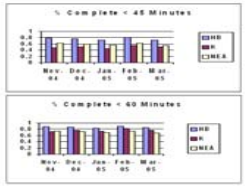
The Plan...

- Concerned about inability to move forward from just monitoring laboratory indicators, the laboratory management team developed **11 Annual Quality Objectives** to **focus** efforts on quality improvement.
- **The Annual Quality Objectives**:
  - represent most departments and subspecialities of the laboratory
  - cover preanalytic, analytic and post-analytic phases of the laboratory's path of workflow.
  - have timelines and persons responsible for them.
  - **use laboratory indicators to measure, monitor and improve the quality of laboratory services.**

Tests ordered in error at requisition entry (number by month)



Turnaround Times - expressed in % complete



Quality System Implementation

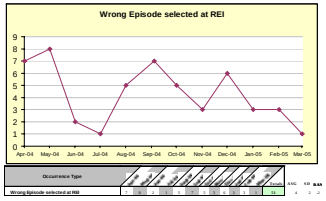
- Quality policies outlined.
- Quality processes flowcharted.
- Supporting documents created.
- Document Management System established.
- Operational processes identified and flowcharted . Supporting procedures drafted.
- Established formal Occurrence Management program.
- ***Developed an extensive list of measures based on operational paths of workflow or processes …***

Quality Objective Example # 1

Objective: "Improve accuracy of requisition entry by reducing data entry errors by 25% by July 2005. " Lead - Manager data entry

- 3 existing measures were drawn from monthly laboratory indicator reports.
- Working group formed.
- Procedure documents re-written and in some cases developed to address gaps in information leading to errors.
- Training /re-training program developed to address areas of concern.

Wrong patient case # entered at requisition entry (number by month)



Conclusions

- Collecting and monitoring "measurements" or indicators is not enough.
- Focused efforts are required to make significant improvements in laboratory quality.
- Setting quality objectives that are "SMART" **s**pecific, **m**easureable, **a**ctionable, **r**eliable and **t**imely help focus quality improvement efforts.
- Using quality systems thinking, the path of workflow concept ensures quality is looked at from the beginning to end of a process with performance indicators at key points.

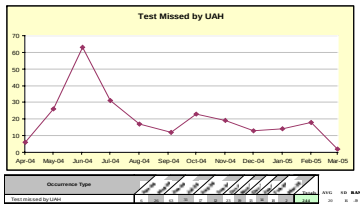
The Quality Challenge...

The Laboratory established a list of approximately 100 indicators but was failing at initiating action to significantly improve quality.

How could the laboratory choose meaningful indicators or measures of quality?

How could the laboratory move from just measuring quality to actually improving it?

Tests missed at requisition entry (number by month)



Quality Objective Example # 2

Objective: "Reduce the TAT (receipt to report) of STAT CBCD (complete blood count w/differential) to 80% within 60 minutes and K (potassium) to 80% within 45 minutes and 95% within 60 minutes by Dec 2005" Lead - Senior Director.

- TAT (turnaround) reports were reconfigured to focus on outliers rather than average TAT.
- Staff from preanalytic and analytic areas formed a work group to look at path of workflow and procedures.
- Work focused on getting samples onto laboratory automation to gain maximum efficiency and time-saving.

Acknowledgments

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- **Resources** - NCCLS/CLSI Quality System Model of Healthcare HS1 - A2
- NCCLS/CLSI Application of a Quality Management System Model for Laboratory Services GP26-A3
- NCCLS/CLSI Training and Competence Assessment GP21-A2